

## PERFORMANCE WORK STATEMENT

### A. PROJECT/TITLE

Aircraft Structures for Inspectors employed by the Federal Aviation Administration (FAA).

### B. BACKGROUND

Under Title 49 of the United States Code (49 U.S.C.), the FAA is authorized to train employees as necessary in the exercise and performance of the powers and duties of the Administrator. The interests of the public, the safety of the workforce, and the credibility of the organization are best served by having qualified, proficient, and current inspectors conducting surveillance, testing, and checking functions.

### C. SCOPE

The contractor is to provide instructors, facilities, training materials, and training to FAA Inspectors in each of the following individual courses:

- Aircraft Structures for Inspectors/Engineers employed by the Federal Aviation Administration (FAA).

The contractor may provide this training through their standard courses offered to the public, or other governmental agencies, or by submitting courses solely intended for FAA inspectors.

The number of classes to be held will be determined by AFS-500. Student quotas for these courses will be assigned by the Flight Standards Service Training Division, AFS-500 or Aircraft Certification Service – Planning and Program Division AIR-500. FAA formal training consists of training courses with agency level course numbers that will be officially recorded in the employee's personnel records. Class size will range from (4) four FAA employees to a maximum of (16) sixteen. FAA employees may be scheduled into classes with non-FAA customers. The tuition cost should be based on a per student basis. All travel and per diem costs will be the responsibility of the FAA.

### D. DEFINITIONS

The following definitions are used to define the terminology contained herein and are applicable as required by Title 14 of the Code of Federal Aviation Regulations (14 CFR).

**Contracting Officer (CO):** The person authorized to act on behalf of the Government to negotiate and award contracts and modifications thereto, and to administer contracts through completion or termination. Except for certain limited authority delegated by the Contracting Officer to a technical representative, the Contracting Officer is the only individual with the authority to direct the work of the Contractor.

**Contracting Officer's Technical Representative (COTR):** The authorized Government representative(s) acting within the limits of their delegated authority for management of specific projects or functional activities.

**FAA:** Federal Aviation Administration, a component agency of the U.S. Department of Transportation.

## **E. APPLICABLE DOCUMENTS**

Title 14 of the Code of Federal Aviation Regulations (14 CFR), Parts 91, 121, and 135. The applicable regulations are available for download, in pdf format, at [www.faa.gov/regulations\\_policies/faa\\_regulations/](http://www.faa.gov/regulations_policies/faa_regulations/).

Title 49 of the United States Code available at <http://uscode.house.gov/download/download.shtml>.

Appendix A - Certification of Training and Course Evaluation (sample attached).

## **F. GENERAL REQUIREMENTS**

### **1. Daily Sessions**

When possible, training must be conducted on a one-shift basis eight hours per day. To the maximum extent possible, training should not start on a Monday, a day following a federal holiday, nor be conducted on a weekend. Training is to be continuous during these days except for federally established holidays. Local or state holidays must not interrupt the training period. Normal hours of training should not begin later than 9:00 a.m. Should a requirement exist to change either the hours or days of training indicated, the change must be coordinated in advance with the FAA COTR.

### **2. Student Completion Reports**

Upon completion of all training, the contractor must issue a Certificate of Training (Appendix A). The FAA student must sign the certificate, certifying the type of training provided, specific dates, and the duration of such training. One copy of each such certificate must be submitted to the COTR.

### **3. Level of Training**

FAA personnel are expected to perform at a level compatible, with the highest standards of the specialty. Accordingly, each course of instruction must adhere to the adult learning principles, which include, but are not limited to:

- a. Focus the training on "Real World" situations and applications.
- b. Emphasize how the training can be applied.
- c. Relate the training to the instructional objectives.
- d. If possible, relate the training materials to the FAA employees past experience.
- e. Allow reasonable debate and challenge of ideas.

- f. Encourage FAA employees to be a resource to one another.

#### **4. Training Facilities**

The facility used for training must be located in the United States and within 25 miles of a major airport serviced by at least (1) one major US air carrier. In addition, training facilities must comply with the following:

- a. Classrooms must be large enough to accommodate at least the entire class, plus (1) one observer, with either desks or tables large enough to allow students to be able to take notes and still have space for them to keep their reference books open during lecture periods. Student chairs must be ergonomically appropriate for 8-hour occupancy.
- b. Sufficient presentation boards for effective teaching must be provided.
- c. The classroom must be well lighted. There must not be less than 30 foot-candles of illumination at the student's desk or table.
- d. The classroom must be cleaned not less than two-times each week of instruction.
- e. Sanitary restroom facilities must be available within convenient distance of the classroom.
- f. The classroom facilities must be adequately ventilated; heated in winter and cooled in summer. Temperature range must not exceed 68 to 74 degrees, Fahrenheit.
- g. Ambient noise must be below the distraction point. At any position in the classroom, normal instructor voice levels should exceed the ambient noise level by 20 decibels.
- h. Contractor must comply with safety standards specified by the National Electrical Code, the National Fire Code, and the United States of America Standards Institute in conducting contract training. Each class must receive a briefing on safety and security procedures to ensure proper egress in the event of any foreseeable emergency.
- i. Local environmental distraction adversely affecting student learning must be eliminated.
- j. Adequate free student parking must be available near the training site.
- k. Visual aids used in the classroom to describe specific aircraft system or aircraft components must be legible, visible from each student station, and color enhanced as necessary to show each system operating mode.

#### **G. QUALIFICATIONS**

Persons utilized as instructors in these courses must be professional Avionics technicians with a minimum of (10) ten years of industry experience and (3) three years of teaching experience.

#### **H. TRAINING OUTCOMES**

The individual course length must provide approximately 64 hours of instruction to accomplish the following training outcomes:

##### **FAA Course 28451: Aircraft Structures for Inspectors**

This course will provide FAA Inspectors/Engineers with the following minimum content:

1. With reference to course materials, inspectors must be able to accomplish the following:
  - a. Describe design airspeeds ( $V_a$ ,  $V_c$ ,  $V_d$ ) and explain how they are used in aircraft design.
  - b. Define stress and strain and describe their relationship to Modulus of Elasticity.
  - c. Define tensile stress, compressive stress, shear stress, and column buckling.
  - d. Identify the stresses resulting from bending, torsion, and cyclic loading.
  - e. Explain the concept of biaxial stress.
  - f. Given the applied stress, and with additional reference to Metallic Materials Properties Development and Standardization (MMPDS), identify appropriate aircraft structural metals for the application.
  - g. Given the applied stress, and with additional reference to Composites Materials Handbook, CMH-17, identify appropriate structural composite material for the application.
  - h. Explain the uses of strain gages etc. in the determination of stress.
  - i. Describe the advantages and disadvantages of common aircraft structural materials with respect to physical and mechanical properties.
  - j. Relate the different heat treatments of metals and curing conditions for non-metal composite material to the specific material properties.
  - k. List the applications for plastics, composite material, wood and fabric in aircraft construction.
  - l. Given the numerical identification of specific fasteners, and with reference to Metallic Materials Properties Development and Standardization (MMPDS), determine their mechanical properties.
  - m. Describe the advantages and disadvantages of the welding and bonding processes used for aircraft construction.
  - n. Evaluate a given failed structural element, and with reference to Metallic Materials Properties Development and Standardization (MMPDS), design a repair to restore structural integrity, taking into account fatigue and riveted joint strength.
  - o. Given a structural test plan, determine if the test is adequate to establish compliance with the strength requirements, and that the test specimen has been properly instrumented.
  - p. The contractor shall demonstrate to each class a structural strength determination using finite element analysis.
  - q. The contractor shall demonstrate to each class metal failure from the effects of nitrogen or hydrogen.
2. Class laboratory exercises to determine material strengths shall be included in each class.

## **I. TRAINING REQUIREMENTS**

- a. All instruction must be presented by a qualified instructor in a classroom environment. If Computer-Based Instruction (CBI) is used to accomplish ground school training then the following requirements must be met:

1. Students must receive a thorough briefing on the operation and use of the CBI equipment.
  2. At least (1) one instructor must be present or readily accessible by electronic means to resolve any problems or questions that the student may have regarding the material presented in the CBI program.
  3. All material presented by CBI must be reviewed and reinforced by a qualified instructor in classroom discussion or one-on-one with the student.
- b. In the event, the FAA student fails to report for training as scheduled, or should become ill, injured or incapacitated during the training period the contractor must promptly notify the COTR and the student's emergency contact, if known.
  - c. In the event, a student does not complete the full course provided for in the schedule, the contractor must invoice the FAA for only that pro rata portion of training actually completed per Paragraph F.2 of this PWS and as certified on the Certificate of Training (Appendix A).
  - d. Upon completion of all training, the contractor must issue a Certificate of Training.
  - e. The contractor must reproduce and provide legible copies of printed materials necessary to conduct the course including Student Guides, Exercise Worksheets, Handouts, and other materials required for successful course delivery to each student. The manual must contain information, which can be utilized in performing job functions pertaining to the course material being instructed. The contractor can also offer all course material and handouts in an electronic format at the end of the course to minimize the cost of reproducing. Course material that is reutilized must be maintained free of markings and notes. The contractor must also provide pencils and blank paper for note-taking as required.

(Appendix A). The FAA student must sign the certificate certifying the type of training provided, specific dates, and the duration of such training. One copy of each such certificate must be submitted to the COTR within (5) five working days of the completion of the course.

## **J. PERFORMANCE REQUIREMENTS FOR TRAINING COURSES**

As part of the proposal, the contractor must submit:

- a. A training syllabus in sufficient detail to determine compliance with the requirements specified in sections C and H of this performance work statement (PWS).
- b. A description of the training aids and facilities in sufficient detail to determine compliance with the requirements of section F.4 of this PWS.
- c. Proposed training hours in compliance with sections F.1 of this PWS.
- d. Resumes for all instructors to be utilized in this training in sufficient detail to determine compliance with section G of this PWS.
- e. The proposed number of training days expected to be required to complete all training and testing for each course.

## K. DELIVERABLES

The contractor must:

- a. At least (2) two weeks prior to any course, provide each registered student with the training site address, map and/or directions to the training site, a local point of contact and telephone number, and commercially available lodging near the training site.
- b. Provide training as specified in their submitted training syllabus.
- c. Provide the hours of training proposed in section F.1.
- d. Commence training upon the student's arrival at the contractor's facility on the date and time agreed upon.
- e. Provide a copy of the syllabus, training schedule, course description, course reference book, and any other needed course materials to each student on the first training day of each training course.
- f. Complete the training within the proposed number of training days barring unforeseen circumstances beyond the control of the contractor.
- g. Provide the COTR with a completed certificate of training signed by both the student and the contractor's instructor and the course critique (Appendix A) within (5) five calendar days of the completion of the training.